

## VOC Emissions Sources and Air Pollution Construction Permits

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### ***What is a VOC Emissions Source?***

A VOC (or volatile organic compound) emissions source is a process or production unit that uses paints, inks, lacquers, adhesives, other coatings, clean up solvents or other solvents or materials that contain VOCs or create emissions of VOCs. For this fact sheet we will focus on examples of VOC emissions sources with painting or coating operations. Some examples of that type of VOC source are: wood coating, metal part painting, plastic part coating, fabric coating, cabinet/countertop lamination, furniture coating, printing presses, screen printing units, motor vehicle repair shops.

### ***Why Should I be Concerned About VOC Emissions Sources?***

Emissions of VOCs are known to contribute to increased ozone ("bad" ozone, a.k.a. smog) levels. The Wisconsin Department of Natural Resources (DNR) has regulations that apply to specific industries that emit VOCs through their production or manufacturing process. Industry specific VOC regulations may also be referred to as RACT rules (Reasonably Available Control Technology). **Some** of the VOC RACT rules cover processes or operations like:

- motor vehicle refinishing;
- industrial adhesive users;
- solvent cleaning activities;
- wood furniture manufacturing;
- lithographic printing.

There are a number of other VOC rules affecting specific types of businesses or activities which can be found in chapters NR 419-425 of the Wisconsin Administrative Code (Wis. Adm. Code). The DNR also has a general rule regulating VOC emissions found in NR 424. *For more information the Small Business Clean Air Assistance Program (SBCAAP) has fact sheets on **VOC RACT Rules** and the **Organic Compound Rule in NR 424**.*

Another concern is that many VOCs are also considered hazardous air pollutants (HAPs), which are regulated under separate requirements by both the DNR and the U.S. Environmental Protection Agency (EPA).

### ***VOC Emissions Sources and Construction Permits.***

Are you considering adding a new printing unit or spray booth? Do you have plans to change your coating application equipment? Do you need to increase the product throughput capacity of your solvent based parts wash line? Will you be moving your operations to a new location? If so, you may be required to file an application for an air pollution construction permit with DNR.

**\*\***Another trigger for needing a construction permit would be if your production has increased over time to the point you no longer meet the permit exemptions listed below.

### ***Construction Permit Exemptions***

Some VOC emissions sources may be exempt from the requirement to apply for a construction permit. If the unit(s) you want to install or modify are either a painting/coating or printing line and **will emit** less than **1666 pounds of VOC per month**, your project may be exempt. If you want to increase the capacity of a unit like a solvent based parts wash line, the increase in VOCs must be less than a **maximum theoretical emission** rate of **5.7 pounds per hour**. For each type of process that you wish to install, replace, or change in some fashion, you need to check out which exemption might apply to that action. The construction permit exemptions are found in chapter NR 406, Wis. Adm. Code.

You might notice that the exemptions mentioned above used two different types of terms for emissions: "will emit" and "maximum theoretical emissions". The "will emit" phrase means the actual emissions the unit will gen-

erate under normal operations. “Maximum theoretical emissions” means the emissions from your operations at their absolute highest production level physically possible by the designed capacity. It does not consider any control device that might be used to reduce emissions. Maximum theoretical emissions are not just the maximum level you expect to ever operate your process line at; they could be much higher. The process **design capacity** may be the maximum conveyor line speed if you paint parts attached to an overhead conveyor line, or maximum press speed, etc. These are important distinctions to watch for when deciding if you are exempt.

### How to Calculate VOC Emissions?

To find out if you are exempt, you will need to do some calculations. *As an example a coating operation will be used. The exemption for a coating operation is **1666 pounds VOC per month of actual emissions**.* You need a couple things for these calculations:

❶ If the exemption that applies to your new or changed process is based on what it “will emit”, you will need to project from your expected operations what you will need to run the process at and from there how much VOC emissions that will generate. If you expect to have enough customers that you can produce **X** number of coated parts each month, how much coating will you use to meet that production level?

*If the exemption that applies to your process is based on “maximum theoretical emissions,” your equipment supplier or manufacturer may know the design capacity to help you determine the emissions.*

❷ Get copies of the Material Safety Data Sheets (MSDS) for each coating you will use. These would come from your coating supplier. Look under the Physical Characteristics section of the MSDS and be sure it has either:

- VOC content in pounds per gallon (lb/gal), OR
- VOC content in percent (%) by weight (wt) and Density of Coating in lb/gal.

If the MSDS has VOC content in pounds per gallon, **excluding water**, DO NOT USE that value for these calculations.

❸ If you do not have the necessary information to calculate VOC content in lb/gal, you should be able

to get that information from your coating supplier. They should know the VOC content of the materials they are supplying to you. You may have sufficient information to calculate VOC content in lb/gal from the VOC content in percent by weight (% by wt) and the coating density, as follows:

#### Equation:

$$\begin{aligned} &\text{Coating Density (pounds per gallon, lb/gal)} \\ &\times \text{VOC Content (percent by weight)} / 100 \\ &= \text{VOC Content (lb VOC/gal)} \end{aligned}$$

#### For Example:

Coating Density = 14 lb/gal  
VOC Content = 40 percent by weight

#### Calculate:

14 lb/gal X 40/100 = **5.6 lb VOC/gal**

❹ Once you have the VOC content in lb/gal, you can calculate the VOC emissions. Multiply the VOC content by the amount of coating used that month, in gallons and you have pounds VOC per month for that coating. If you used 100 gallons of the coating with 5.6 lb VOC for one month:

100 gal/mo x 5.6 lb VOC/gal = **560 lb VOC/mo**

❺ Do this calculation for each coating you used in the month. Also, you should include VOCs from clean up solvents directly related to the process, like gun or applicator cleaning for coating operations. Then add up the VOC emissions from all the coatings and solvents used to get the total VOC emissions in pounds per month. If this total is **less than 1666 pounds per month**, you are exempt from a construction permit.

### What Do I Need To Do If I'm Exempt?

It does depend on the exemption that applies to you, but for this example you will need to keep records for each month that shows that your emissions stay below the exemption level of 1666 pounds VOC. As your production grows closer to that level, you will want to start looking at the permit application process. You will need to have a construction permit issued to you **before** your monthly emissions go over the 1,666 pound per month level. You can use the **Air Permit Compliance Calendar**, available from SBCAAP, to help you manage the records of your VOC emissions on a monthly basis.

## How Do I Apply for a Construction Permit?

If you are not exempt from the construction permit requirements, contact the DNR or Small Business Clean Air Assistance Program (SBCAAP) to get the permit application materials and instructions. If you have questions about how to complete the forms you can contact DNR or the SBCAAP to help arrange a pre-application meeting. Once you have completed the application, two copies should be submitted to the nearest DNR office with Air Program staff. The **DNR Contact** fact sheet lists the offices throughout the state as well as permit contacts in your area.



## What Will the Application Cost?

You must enclose a check for \$1,350.00, payable to the Department of Natural Resources, when you submit the application. Other costs associated with the construction permit review process will vary depending on which requirements apply to your proposed project. Some additional costs may include:

- ❖ \$2300 minor source review;
- ❖ \$12,000 major source review;
- ❖ \$4,000 or \$8,000 for minor or major modifications (respectively);
- ❖ \$1,350 for a stack test of single pollutant, and \$950 for each additional pollutant up to 3 (may not be required);
- ❖ \$700 air quality analysis for minor source;
- ❖ \$2650 fee for expedited review of a minor source. (This speeds up the review of your application.)

The application fee will be returned by DNR if the project does not need a construction permit or it will

be applied to your final fee if the project does need a permit. If a permit is not required, you may then begin construction immediately. If a permit is required, you must wait until a permit is issued by DNR to begin construction. There is always a possibility that DNR will deny your permit, if you cannot meet all the requirements that apply, so you would be in trouble if you've done anything to start on your construction before receiving a permit.

## What are the Permit Review Steps?

First, the DNR reviews the complete construction permit application, which can take from 20 to 60 days **or more** depending on the size of the project and how many permits are being reviewed by DNR. When the review is completed, the DNR then prepares a preliminary decision on whether the application is approved or denied and publishes a notice in your local paper. The notice tells the public they have 30 days from the date that paper was published to comment on the proposed project.



If the public shows significant interest in the proposed project or specifically requests one, the DNR will schedule a public hearing within 60 days after the end of the public comment period. Then DNR will issue or deny the construction permit within 60 days after the close of the public hearing. Note that this means a public hearing could add up to 120 days to the process.

If there is minimal interest during public comment, DNR can issue the permit soon after the 30 days is up. Once issued, the construction permit is effective for 18 months, with a possibility for one 18-month extension.



## Contacts for More Information or Assistance.

The Small Business Clean Air Assistance Program helps smaller businesses understand and comply with the Clean Air Act regulations. Contact one of the program's Clean Air Specialists for more assistance: Renée Lesjak Bashel at 608/264-6153 or Tom Coogan at 608/267-9214.



For further information on the construction permit process contact your DNR Regional or Service Center office shown on the **DNR Contact Fact Sheet** or the DNR's Central office at 608/266-6876.